CHAPTER 3 - FORECASTS OF AVIATION ACTIVITY

INTRODUCTION

Forecasts of future levels of aviation activity are the basis for effective decisions in airport planning. These projections are used to determine the need for new or improved facilities. In general, forecasts should be realistic, based upon the latest available data, be supported by information in the study, and provide an adequate justification for airport planning and development. This planning process will eventually result in various facility development recommendations tied to the demand projected within respective forecast periods.

However, in all likelihood, activity growth will not exactly occur as projected. There undoubtedly will be peaks and valleys over the next 20 years that our process depicts in a linear fashion. Therefore, the facility development recommendations may have to be adjusted accordingly. Slower than projected growth may delay or even negate the need for recommendations, especially for those in outlying years. Naturally, the opposite may hold true for faster than projected growth.

We start through the preparation of reliable activity baseline, which was accomplished in Chapter 2 (starting on page 3). The next step will be a review of factors affecting aviation activity, followed by discussion of other local, regional, and national aviation and related forecasts, and a review of various forecast methodologies. We then develop a forecast range, compare it to other forecasts for reasonableness, and submit the forecasts to CTDOT and FAA for approval.

FORECAST ELEMENTS

To establish the demands likely to be placed on GON, forecasts will include all relevant aviation demand elements, including both the type and level of aviation activity expected at the airport over the planning horizon. The specific activity elements to be forecasted include:

- Number and Type of Based Aircraft
- Aircraft Operations: General Aviation, Military, and Commercial (Schedule Service)
- Passenger Enplanements (GA/Air Taxi/Charter and Scheduled Service)
- Peak Hour Activity
- Identification of the Forecasted Critical Aircraft
- Airport Role (General Aviation, Reliever, and/or Commercial Service)

GON FORECAST ASSUMPTIONS

There are several existing operations at GON that need to be understood as they relate to our forecasts of future activity at GON. This includes military and the air taxi/charter operations that will have some impact on the total operations projections developed in this section. Each is briefly discussed below in following paragraphs.

MILITARY OPERATIONS AND AIRCRAFT

For purposes of this analysis, military operations will be shown as a constant throughout the planning period. The FAA and other industry analysts have no reliable method of determining military growth trends and typically this information is classified. Further, military operations are a relatively small component of the overall operational use of GON. While TASMG predicts and is planning on future expansion, this growth is under the purview of the Connecticut National Guard and Department of Defense, not the FAA or CTDOT. Regardless, even with strong growth, military operations will remain a small percentage of the total, and will remain almost exclusively helicopters because of the nature of TASMG's mission. Nevertheless, military operations will be included in respective noise analysis.

As stated earlier, TASMG is developing its own internal master plan. Until this study is complete, TASMG will not fully understand its future infrastructure needs. To help ensure a seamless integration with TASMG facility needs and future civilian growth, open communication channels between all affected parties will be maintained throughout this study.

GENERAL AVIATION, AIR TAXI AND CHARTER OPERATIONS

The broad definition of general aviation includes all civil aviation except that classified as air carrier or air taxi. The types of aircraft typically used in GA activities can vary from large multiengine jet aircraft to single engine piston aircraft and other sport and recreational aircraft including gliders and balloons. At GON, there are several on-going operations that are not technically defined as GA including charter flights to and from Long Island, accessing Mohegan Sun and other for hire charter flights offered by respective FBOs. For purposes of this analysis, these operations are included in the forecasts below. A discussion regarding the possible reintroduction of regularly scheduled commercial service at GON is presented later on page 64.

TERMS OF AVIATION FORECASTS

Forecasts are prepared for short-, medium- and long-term periods and will specify the existing and future critical aircraft. Short-term forecasts, for up to five years, are used to justify near-term development and support operational planning and environmental improvement programs. Medium-term forecasts (a 6- to 10-year time frame) are typically

used in planning capital improvements and long-term forecasts (beyond 10 years) are helpful in general planning.

Given the above, the forecast horizons for this update are:

- **Short-Term**. Five-year period from 2010 through 2015. During this period, the airport and its sponsor will focus on correcting safety related issues, such as improving the runway safety areas. In addition, operational and environmental improvements should be undertaken.
- **Intermediate-Term**. Second five-year period from 2016 through 2020. During this period, the sponsor should focus on capital improvements, including major construction projects.
- **Long-term**. Last 10 year period, from 2021 through 2030. This is the general planning period. Assuming all short and intermediate term projects are successfully completed, the sponsor should undertake another master plan update while concentrating on how to best position the airport for the third and forth decades.

FACTORS AFFECTING AVIATION ACTIVITY

In preparing forecasts of demand and updating existing forecasts factors considered include socioeconomic data, demographics, disposable income, geographic attributes, and external factors such as fuel costs and local attitudes towards aviation. To the extent data is available; we will address each of these elements.

ECONOMIC CHARACTERISTICS

The economic characteristics of a community will affect the demand for air traffic. In regions experiencing strong economic growth, business travel typically increases and greater disposable income translates into higher volumes of personal and vacation air travelers. In addition to national and regional economic trends, local activities that distinguish the geographic area served by the airport must also be considered. If an airport serves a major recreational area, peak seasonal demands should be assessed. Further, an airport serving a large governmental/military facility may also experience sudden surges and cutbacks in airport use depending on federal funding. The type of industry in an airport's service area also will affect aviation demand, with manufacturing and service industries tending to generate more aviation activity than resource industries such as mining.

DEMOGRAPHIC CHARACTERISTICS

The demographic characteristics of an area's population also affect the demand for aviation services. Demographic characteristics influence the level, composition, and growth of both local traffic and traffic from other areas. Factors such as leisure time and recreational

activity are important in estimating activity, but can be difficult to measure. Another important demographic characteristic is the level of disposable income, usually measured on a per capita basis, which is a good indicator of the propensity to travel and general aviation aircraft purchases and use.

GEOGRAPHIC ATTRIBUTES

The geographic distances between populations and centers of commerce within the airport's service area may have a direct bearing on the type and level of transportation demand. The existence of populations and centers of commerce beyond an airport's service area may indicate the need for additional airports that serve transportation demand. The physical characteristics of the area and the local climate may also be important, since they may stimulate holiday traffic and tourism. The role of the airport within the airport system and its relationship to other airports may also have an effect on the services that are demanded at the airport.

AVIATION RELATED FACTORS

Business activity, changes in the aviation industry, and local aviation actions[1] can markedly affect the demand for airport services. Business developments in the airline industry, such as consolidations, mergers, and new marketing agreements, can affect airline operations at a particular airport, while fractional ownership of aircraft can affect others. Wider industry trends, such as the introduction of new low-fare service, the introduction of new classes of aircraft, and the growth or curtailment of airline hub and spoke systems[2], may also alter the level and pattern of demand. To the extent that such actions affect all aviation activity in a region or the country, their effects will be captured in the FAA's forecasts. If, however, only the demand at a particular airport is affected, appropriate adjustments should be made in that airport's forecast. Actions taken by local airport authorities, such as changes in user charges, ground access policies or their support services can also stimulate or hinder the demand for airport services. Investment decisions made as a result of the planning process itself can also produce change by removing physical constraints to airport growth, which should be reflected in the forecasts.

[1] "Local actions" may include the reputation and service practices of the FBO, on-field pricing structure, and/or operational restrictions, such as noise abatement policies, that may impact both private and commercial operations.

[2] An airline hub is an airport that an airline uses as a transfer point to get passengers to their intended destination. It is part of a hub and spoke model, where travelers moving between airports not served by direct flights change planes en route to their destinations.

OTHER FACTORS

External factors may also influence the demand for airport services. These include economic actions such as fuel price changes, availability of aviation fuels, currency restrictions, and changes in the level and type of aviation taxes. Political developments, including rising international tensions, changes in the regulatory environment, and shifting attitudes toward the environmental impacts of aviation, may also impact future demand and should be considered in developing or updating airport forecasts.

PREVIOUS AIRPORT FORECASTS

Applicable forecasts prepared specifically for GON are reviewed in this section. This includes three different forecasts sources prepared by the FAA, as well as forecasts from the last master plan. In addition, forecasts from the Connecticut Statewide Aviation System Plan (CSASP) and economic and demographic trends prepared by the Southeastern Connecticut Council of Governments (SCCOG) are presented. The primary focus of forecast review will be on general aviation activity (this includes private, corporate, air taxi and charter aircraft and operations). Include in this study is a brief exploration of the possible reintroduction of scheduled service to GON. For purposes of this analysis, military based aircraft and operations will be assumed to remain constant through the planning period.

FAA FORECASTS

Three different forecast sources prepared by the FAA are reviewed in this section. The first is from the annual update of the *National Integrated Plan of Airport Systems (NPIAS) 2007*. This particular document is primarily used as a tool as for capital budgeting for required funding through Airport Improvement Program. The second document, *FAA Aviation/Aerospace Forecasts 2007-2020* is also updated annually by the FAA and represents a national overview of projected activity levels. It is especially helpful in projecting the changes in fleet mix at both commercial service and general aviation airports. The third forecast source prepared by the FAA is the *Terminal Area Forecast (TAF).* This effort is more site-specific than the other two documents in terms of based aircraft and operations for an individual airport. Each is briefly discussed below.

NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS)

The National Plan of Integrated Airport Systems (NPIAS) is used by FAA management in administering the AIP. It supports FAA's goals for safety and capacity by identifying the specific airport improvements that will contribute to achievement of those goals.

NPIAS includes a section on the condition and performance of the airport system, highlighting six topics: safety, capacity, pavement condition, financial performance, surface accessibility, and environment. The findings in the 2007 update are generally favorable, indicating that the system is safe, convenient, well maintained, and largely supported by

rents, fees, and taxes paid by users. At GON specifically, NPIAS projects the role[3] of the airport to remain General Aviation with 46 based aircraft over the next five years[4] and $8.5 million needed for AIP eligible project funding over this five year period.

FAA AVIATION/AEROSPACE FORECASTS 2007-2025

As noted in the above referenced document, developing forecasts of aviation demand and activity levels continues to be challenging as the uncertainties confronting the aviation industry have remained complex and difficult to quantify. Nevertheless, the FAA has developed a set of assumptions and FAA aerospace forecast are consistent with the emerging trends and structural changes currently taking place within the aviation industry.

The general aviation forecasts rely heavily on the discussions with industry experts that occurred at the October 2006 FAA/Transportation Research Board (TRB) Workshop on General Aviation.

Table 3.1 briefly summarizes FAA national aerospace forecasts for projected GA aircraft. Particular focus is given to the changing fleet mix with the expected highest growth in fixed wing turbine equipment.

Table 3.1 - FAA Forecasted Rate of Growth (Avg. Annual %) Active General Aviation and Air Taxi Aircraft

Period	Fixed Wing						Rotorcraft			Other[1]	Total GA Fleet	Total Pistons	Total Turbines
	Piston			Turbine									
2010 2024	Single	Multi	Total	Prop	Jet	Total	Piston	Turbine	Total	0.1%	1.4%	0.4%	3.6%
	0.3%	-0.2%	0.3%	0.6%	6.0%	4.1%	5.7%	2.1%	3.6%				

1. Includes experimental and sport aircraft
Source: FAA Aviation/Aerospace Forecasts Year 2010-2024

The following key points are gleaned from the FAA Aviation Forecasts for aviation nationally:

- The active general aviation fleet[5] is projected to increase at an average annual rate of 1.4 percent over the 14-year forecast period, growing from an estimated 226,422 in 2006 to 274,914 aircraft in 2020.

[3] One of four basic airport service levels which describe the type of service that the airport currently provides to the community and is anticipated to provide the community at the end of the five-year planning period.
[4] The existing number of based aircraft (which for this document would have been 2006) is not shown. It is likely that the NPIAS forecast was derived from an assumed 39 aircraft which would equate to annual average growth rate of 3.5%.
[5] General aviation is the operation of civilian aircraft for purposes other than commercial passenger transport. The active general aviation fleet refers to aircraft that are operational and air worthy. It is

- The more expensive and sophisticated turbine-powered fleet[6] (including rotorcraft[7]) is projected to grow at an average of 3.6 percent a year over the 14-year forecast period with the turbine jet fleet increasing at 6.0 percent per year. At the October 2006 TRB/FAA workshop, industry experts suggested the market for new VLJs could add 500 aircraft a year to the active fleet by 2010.
- The relatively inexpensive twin-engine turbine powered aircraft (priced between $1 and $2 million) are believed by many to have the potential to redefine the business jet segment by expanding business jet flying and offering performance that could support a true on demand air-taxi business service. This year's forecast assumes that VLJs will begin to enter the active fleet in 2007 (350 aircraft) and grow by 400 to 500 aircraft a year after that, reaching 6,300 aircraft by 2020.
- The number of piston-powered aircraft (including rotorcraft) is projected to increase from 170,967 in 2006 to 181,750 in 2020, an average increase of 0.4 percent yearly.
- Although piston rotorcraft production are projected to increase rapidly (5.7 percent per year) they are a relatively small component of this segment of general aviation aircraft.
- Single-engine and multi-engine fixed-wing piston aircraft, such as a Cessna Skyhawk or Piper Seneca, which are much more numerous, are projected to grow at much slower rates (0.3 and -0.2 percent respectively) leading to the low growth of the piston-powered fleet. In addition, it is assumed that relatively inexpensive VLJs and new light sport aircraft, like the Cheetah XLS and Atec Zephyr would erode the replacement market for traditional piston aircraft at the high and low ends of the market respectively.

TERMINAL AREA FORECASTS (TAF)

The primary TAF forecast of interest to GON is for operations, which include air taxi, general aviation and military operations. It is important to note that FAA forecasts are not continuously updated, and therefore do not necessarily start with current baseline data. When analyzing Table 3.2 (next page), which represents FAA forecasts for the period from 2008 through 2025, known data from 2007 (as reported in Chapter 1) does not correlate accurately with 2008. As an example, total operations reported at the end of 2007 were 51,960[8]. This number is within 845 operations, or less than one percent difference.

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important to note that general aviation aircraft can include any type aircraft from a small home-built experimental airplane to a large multiengine jet transport.

[6] For example the Cessna Citation and Gulfstream III business jets.

[7] Rotorcraft is an FAA category of aircraft (for helicopter).

[8] Exclusive of night operations between the hours of 10 p.m. and 7 a.m. Much

Table 3.2 - FAA Terminal Area Forecasts for GON

Year	Itinerant Operations					Local Operations			Total Operations	Instrument Operations	Based Aircraft
	Air Carrier	Air Taxi	General Aviation	Military	Total	General Aviation	Military	Total			
2008	0	2,132	27,461	2,971	32,564	19,956	1,742	21,698	54,262	9,560	69
2013	0	2,172	30,250	2,971	35,393	20,959	1,742	22,701	58,094	10,326	74
2019	0	2,222	32,693	2,971	37,886	22,228	1,742	23,970	61,856	11,009	80
2025	0	2,274	35,061	2,971	40,306	23,570	1,742	25,312	65,618	11,674	85
Net Change	0	142	7,600	0	7,742	3,614	0	3,614	11,356	2,114	16
Annual Growth		0.37%	1.54%	0.00%	1.32%	1.01%	0.00%	0.93%	1.16%	1.23%	1.29%

The TAF operations forecasts prepared specifically for GON are compared to similar projections done on a national basis for all towered airports. As shown in the TAF (Table 3.2 *Total Combined Aircraft Operations at Airports with FAA and Contract Traffic Control)* GA itinerant is expected to grow by an average annual rate of 1.7 percent nationally compared to 1.6 percent at GON. Local GA is at 0.8 percent nationally and 1.1 percent at GON. Air taxi is 2.7 percent nationally and 0.4 percent at GON with the GA totals over the national forecast period at 1.3 percent compared to 1.2 percent at GON.

The following national key points are gleaned from the FAA TAF Operations Forecasts**:**[9]

- The number of general aviation hours flown is projected to increase by 3.4 percent yearly over the 14- year forecast period. of the increase reflects increased flying by business and corporate aircraft as well as steady increases in utilization rates for piston aircraft.
- Hours flown by turbine aircraft (including rotorcraft) are forecast to increase 6.1 percent yearly over the forecast period, compared with 1.3 percent for piston-powered aircraft.
- Jet aircraft are forecast to account for most of the increase, with hours flown expanding at an average annual rate of 9.4 percent over the 14 years. The large increases in jet hours result from the introduction of VLJs as well as increases in the fractional ownership fleet and its activity levels.
- Utilization rates for VLJs will vary by mission. VLJ air taxis are expected to average approximately 1,500 hours per year, fractional 1,200 and private use 350. This results in an expected utilization rate for all VLJs in 2020 of 3,050 hours. [10]

[9] The information presented in this list is directly from the FAA's Aerospace Forecasts.

- Traditional (non-VLJ) turbojets are expected to average approximately 407 hours per year by 2020, since VLJs are expected to have a greater share of their use in on-demand air taxi than the traditional turbojets.

PREVIOUS MASTER PLAN FORECASTS

The 1999 AMPU developed forecasts that spanned the conventional twenty-year period, starting with baseline data from 1995. The previous master plan also focused on passenger and commuter forecasts, and how service levels experienced by the airport had and would change given the economic conditions of the mid-1990s. Previous master plan forecasts were prepared for commercial, general aviation, and military activity. Military forecasts were held constant and not discussed in this paragraph. As noted above, the primary focus herein is general aviation forecasts as discussed in the following paragraphs.

Table 3.3 presents the summary of recommended forecasts from the 1999 AMPU.

Table 3.3 - Summary of 1999 AMPU Forecasts

Forecast	2005	2010	2015
Passenger Enplanements	32,963	47,219	54,026
Annual Operations	111,096	116,321	120,397
Commuter	4,433	4,908	5,519
Air Taxi	4,822	5,403	6,053
General Aviation	97,127	101,206	104,111
Local	45,650	47,567	48,932
Itinerant	51,478	53,639	55,179
Military	4,714	4,714	4,714
Based Aircraft	78	81	82

Source: Groton-New London Airport Master Plan Update, March 1999, Table 6.24

PREVIOUS AMPU GENERAL AVIATION FORECASTS

The general aviation industry during the previous decade was going through major changes, which made forecasting difficult. While the industry was active and growing steadily in the 1980's, the 1990's were a more difficult time. Many small aircraft manufactures curtailed and, in some instances, stopped production altogether, primarily because of rising, and often prohibitive liability costs. On top of this, and for the same primary reason – high insurance costs – operations dropped significantly, as well as new pilot training and pilot certification renewals. In 1994 Congress passed reform legislation, but its impact on the industry would take another six to eight years to show any favorable gains because of the time it took for manufacturers to retool, start production, and the time it took for the aircraft to eventually reach the end user.

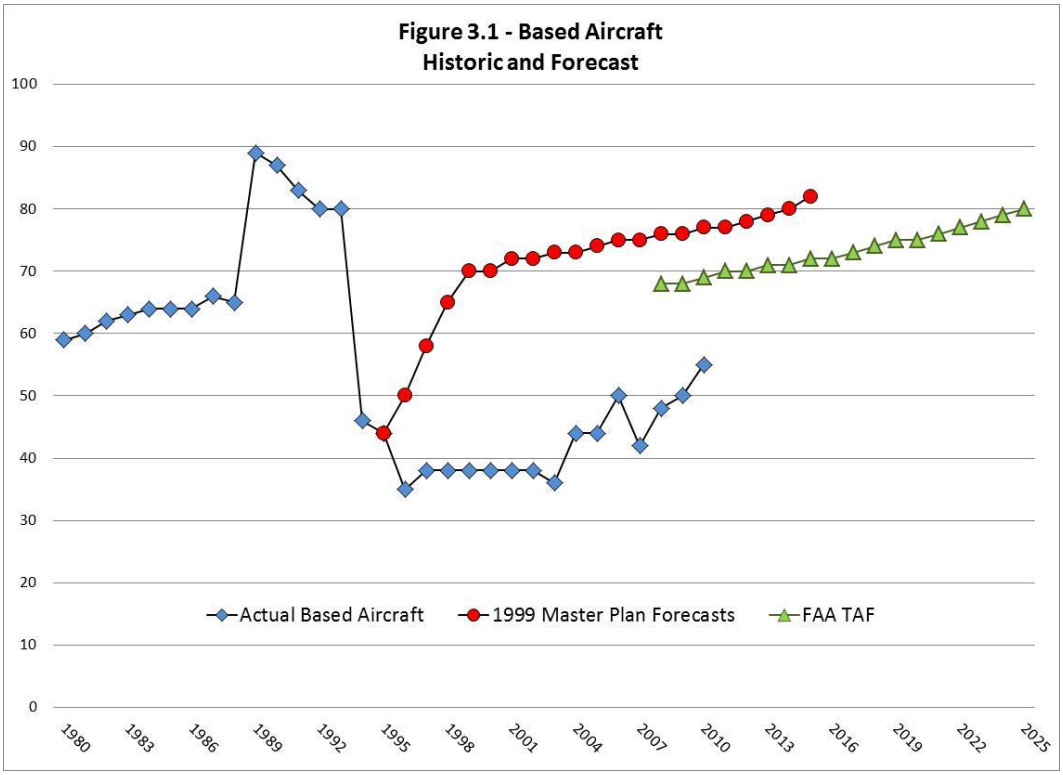
[10] Actual results were not verified because accurate VLJ operations are not specifically tracked. Eclipse Aviation has, as of January 1, 2008, produced 100 of its Eclipse 500 VLJ aircraft (http://www.eclipseaviation.com/company/news/press-releases.php)

The based aircraft forecast in the previous master plan used a "market share" analysis, which was based on the market share of based aircraft at GON relative to the registered aircraft in the general aviation service area. This analysis, which was based on historic trend analysis, was promising for GON. Historically, GON saw a steady increase in market share, from 15.6 percent in 1980 to 19.7 percent in 1993, with some fluctuation during the period. Based on this trend, the 1999 master plan projected a moderate growth scenario that indicated 78 aircraft would be based at GON in 2005 and 80-85 based aircraft by 2015. As indicated in Chapter 1, based aircraft on June 30, 2008 was 42 civil airplanes, (plus military aircraft), which is significantly under the previous AMPU forecasts. An average annual rate of growth of approximately 5% is realized when using the midpoint of this forecast range.

Again, forecasts from 1999 and the FAA are no longer reasonable. As Figure 3.1 (next page) shows, based aircraft forecasts were overestimated; a common event at most airports during this period.

CONNECTICUT STATEWIDE AVIATION SYSTEM PLAN FORECAST

CTDOT prepared a Connecticut Statewide Airport System Plan (CSASP). The CSASP provides a comprehensive review of the current state aviation system in support of continued operation and maintenance of state airports, and recommends modifications to the airport system to meet existing and projected aviation needs. The CSASP forecasts out to the year 2025, and includes statewide population changes.



CSASP - BASED AIRCRAFT

For the based aircraft at GON, a correlation was made between the population in Connecticut and the number of based aircraft at the airport. In 1990, there were 94 based aircraft at the airport. This number fell to 37 based aircraft in 2000, but rebounded to 51 in 2003. This is an average of 0.02 based aircraft per 1000 persons in Connecticut. Due to the services available at the airport, a slightly higher ratio of 0.025 based aircraft per 1000 persons in Connecticut was used for the forecasts. It is assumed that this ratio will remain similar for the study time frame, which corresponds to 94 based aircraft in 2025. This equates to an annual average growth rate of 3.3%; significantly higher than national trends forecasted by the FAA

CSASP - OPERATIONS

The forecast for the number of general aviation operations at GON is expected to grow from 66,200 operations in 2004 to 114,600 operations in 2025. This represents an average increase for the itinerant and local general aviation operations at the airport of 2.8 percent per year between 2004 and 2025. The itinerant and local general aviation split is

approximately 54/46; this split is expected to remain similar through the study period.[11] An increasing portion of the general aviation activity at the airport is corporate operations using the airport because of the facilities available. There is also a large amount of pilot flight training activity at GON represented in the local operations.

SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS FORECASTS

The Southeastern Connecticut Council of Governments (SCCOG), a public agency, created the Regional Plan of Conservation and Development in 2007. The Plan is an advisory document intended to present general recommendations based on a review of regional trends and the identification of issues of regional concern. The Plan identifies five issue areas with associated goals, objectives and recommendations that are based on independent research and analysis as well as responses to a survey, input from a public hearing, public meetings and workshops, and ongoing collaboration with other regional organizations on a number of regional issues and concerns. Of importance to this Master Plan Update are regional population characteristics and forecasts that may be a prime indicator of future airport demand.

SCCOG - POPULATION CHARACTERISTICS

According to SCCOG, the region's population growth has slowed; the characteristics of the regional population have changed significantly over the last fifteen years.[12] The urban municipalities have experienced an overall net loss in population while the population of suburban towns increased substantially. The region's population is significantly older overall and, consistent with the past 30-year regional trend, more diverse. The region has seen a sharp increase in the number of one-person households as well as a notable decrease in median income. Despite the regions slow growth in population, it is projected that the region will grow to more than 272,000 persons by the year 2020, an increase of 12 percent over the 2000 recorded Census population. This equates to an average annual growth rate of 0.6 percent.

FORECAST METHODOLOGY

There are several appropriate methodologies and techniques for forecasting aviation activity at a specific airport. The selection and application of appropriate methodologies and techniques requires professional judgment from experienced planners and aviation officials familiar with industry trends and unique airport environments.

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[11] The actual Itinerant/Local split for the five-year period is 58 percent itinerant to 42 percent local (see Figure 2.21, page 35).
[12] *Regional Plan of Conservation and Development 2007*, Southeastern Connecticut Council of Governments, October 17, 2007.

A forecast effort may involve a number of different techniques. The most common techniques include the following:

- **Regression Analysis** – A statistical technique that ties aviation demand (dependent variables), such as enplanements, to economic measures (independent variables), such as population and income. Regression analysis should be restricted to relatively simple models with independent variables for which reliable forecasts are available.
- **Trend Analysis and Extrapolation** – Typically uses the historical pattern of an activity and projects this trend into the future. This approach is useful where unusual local conditions differentiate the study airport from other airports in the region.
- **Market Share Analysis or Ratio Analysis** – This technique assumes a top-down relationship between national, regional, and local forecasts. Local forecasts are a market share (percentage) of regional forecasts, which are a market share (percentage) of national forecasts. Historical market shares are calculated and used as a basis for projecting future market shares. This type of forecast is useful when the activity to be forecast has a constant share of a larger aggregate forecast.
- **Smoothing** – A statistical technique applied to historical data, giving greater weight to the latest trend and conditions at the airport; it can be effective in generating short-term forecasts. The forecasts in this study are prepared using a combination of trend analysis and professional judgment based on the knowledge gleamed from our study of the airport, its history, and trends in aviation, primarily the general aviation component. In addition, we will look at market share for based aircraft only and compare it to data from a trend analysis and professional judgment. Historical aviation trends over time can be used to project future aviation activity levels. In using it, we have evaluated the history of operations at the airport and will project a future trend based on that history.

GROTON-NEW LONDON AIRPORT GENERAL AVIATION FORECASTS

To assess the future of general aviation activity at GON, we must take a second look at its historic performance, particularly during the past 10 to 20 years. As discussed earlier, GON has seen a steady decline in both based aircraft and operations, however, the net jobs gained during the past 10 years in the region is positive. Defense jobs have declined but tourism jobs have increased. Couple this with a projected 12 percent increase in population, primarily in older, more diverse people (see SCCOG, page 57). The

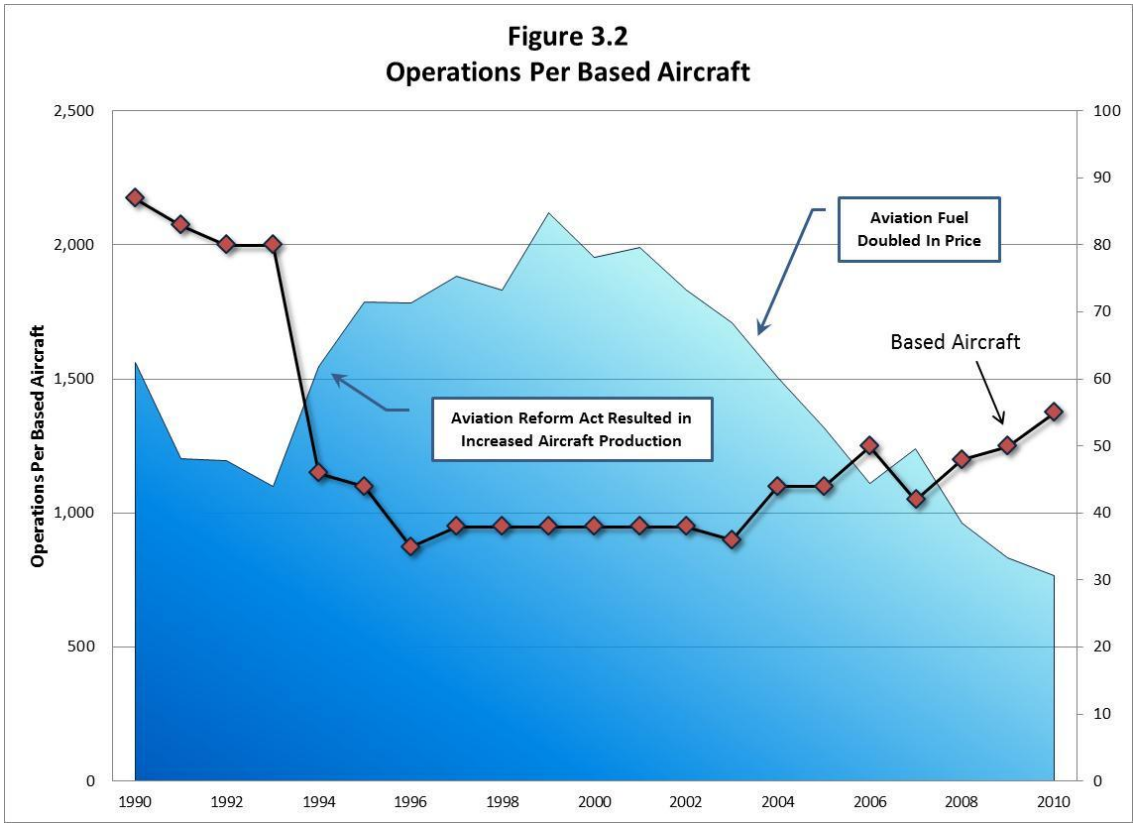
demographic forecasts[13] prepared by SCCOG point to the group of people with disposable income, and the types of jobs and industry that rely heavily on transportation.

Over the past decade, rising fuel and aircraft costs, that have exceeded corresponding increases in income levels, have driven many recreational pilots away from flying. One only has to look at the declining operations at GON and elsewhere to realize the direction general aviation is going. Changes in the fleet mix with the introduction of sport aircraft will result in an increase in smaller, less expensive aircraft populating the flight line and hangars. Unlike their predecessor, sport aircraft are relatively inexpensive to own and operate. However, these new smaller less expensive aircraft will likely only replace existing standard single engine piston, and some light twin piston aircraft. It is unlikely that a net gain will be realized. As stated earlier in this chapter, it is assumed that relatively inexpensive VLJs and new light sport aircraft could erode the replacement market for traditional piston aircraft in the mid-range market. These aircraft are typically higher cost single and light twin engine aircraft in the $200,000 to $800,000 range.

On the positive side, the CSASP forecasts a substantial increase in both based aircraft and operations. The forecast for the CSASP for based aircraft was based on a market share analysis to provide continuity for all the airports in the system. This type of analysis assumes a top down relationship between population and aircraft ownership, and does not take the relationship of rising aircraft ownership costs versus changes in income into consideration. For example, the 2004 CSASP based aircraft correlation is 0.025 based aircraft per 1000 persons in Connecticut. Using this method, the based aircraft today should be approximately 88 aircraft, when in fact, there are 42. This shows why using a market share analysis is not as reliable because it cannot predict changes in market forces; which in this case is the rising cost of aircraft and fuel, and declining pilot population as a percentage of the overall population.

Figure 3.2 (page 61) shows the relationship of based aircraft to local operations. Two important issues to note: first, in 1994, Congress passed legislation that, among other things, opened up production of recreational aircraft, which resulted in increased production and lower overall aircraft prices. Second, the FAA, with pressure from general aviation organizations such as the Aircraft Owners and Pilots Association, developed regulatory changes that sped up experimental aircraft design and production, and sport pilot certification, shortly after the turn of the century, which helped establish the sport aircraft market. This also increased aircraft availability. Finally, as fuel prices started to climb several years ago, the market saw a dramatic decline in recreational flight hours.

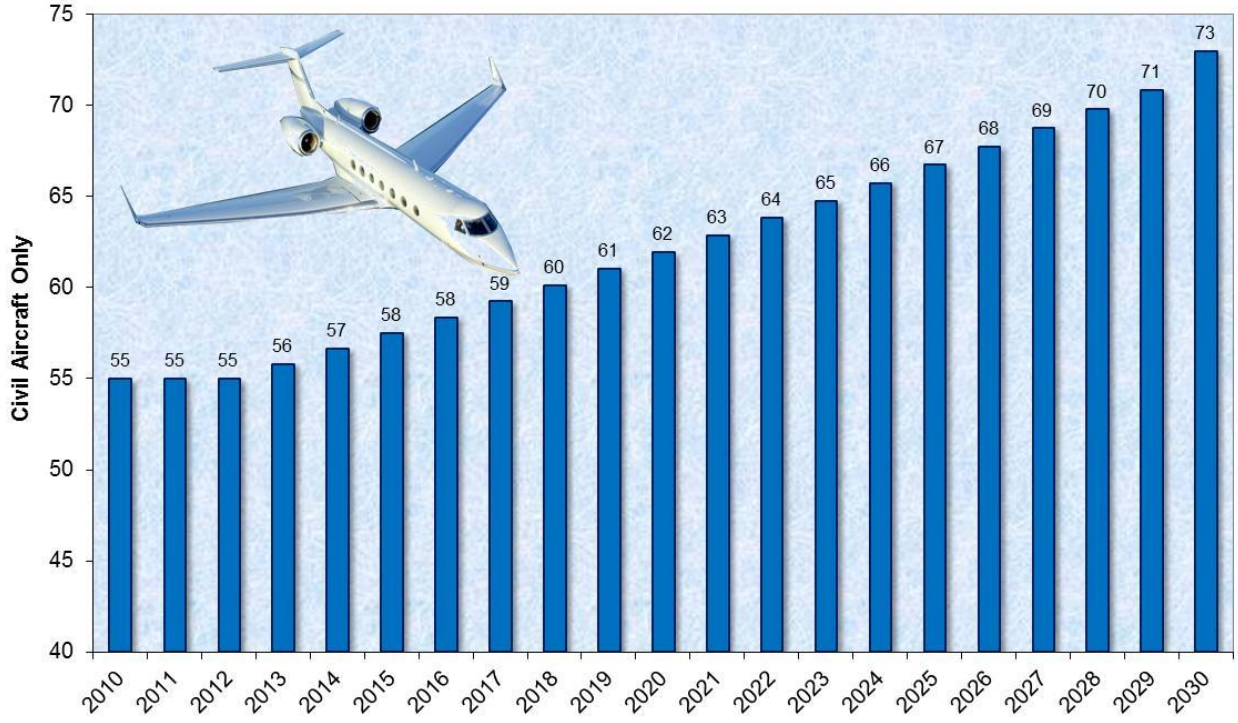
[13] *Demographic trends*, or forecasts, describes the changes in demographics in a population over time. For example, the average age of a population may increase. It may decrease as well as certain restrictions may be in place, for instance like in China if the population is high.



BASED AIRCRAFT FORECASTS

Based aircraft, of which 50 percent are recreational in size and use, will see little growth during this planning cycle. As the cost of owning and operating aircraft continues to escalate, the number of potential owners and operators will continue to decrease as an overall percentage of the general Groton-New London population. In review of the historical forecasts presented earlier, the average annual rate of growth will likely fall within the ranges presented. As noted, the lowest rate of growth is direct correlation to population projections (0.6 percent/year) with the high end based on previous AMPU projections with an average annual rate of growth at five percent. In conclusion, we project the based fleet to remain flat through 2015, and will then increase at the rate of two percent per year through the planning period. This will result in 73 based aircraft in 2030 as shown in Figure 3.3 (page 61).

Figure 3.3 - Based Aircraft Forecasts



FLEET-MIX

The current fleet-mix consists of 37 single engine, 8 multiengine, 2 helicopters and 8 turbofan/jet aircraft. This mix will change during the planning years in favor of a larger percentage of turbojet aircraft over recreational single engine and light twin engine aircraft. This will occur for two reasons. First, the cost of owning and operating general aviation aircraft will continue to drive more people out of the market, primarily because of initial aircraft acquisition, ongoing maintenance and repairs, and operating costs, including fuel, insurance, and parking (apron and hangar). The second reason may be locally driven because of the limited land resources at GON that may have an impact on providing adequate support facilities at a reasonable cost. The profit margin of servicing and maintaining corporate business aircraft is much higher than recreational aircraft. As land becomes limited, the remaining space becomes more valuable thus further exacerbating the cost of flying for the private/recreational aircraft owner at GON.

Another reason for the fleet-mix change is the introduction of the VLJ. This relatively low-cost aircraft may, according to some industry experts, dramatically change the air transportation market by providing affordable air taxi service to currently excluded market segments. Thus, consideration of the VLJ in the fleet-mix ratio is essential for future planning. Table 3.4 shows the current, short-term (2015), intermediate-term (2020), and long-term (2030) projected changes in based aircraft.

Table 3.4 - Groton-New London Airport Based Aircraft Forecasts (2010-2030)

Category of Aircraft	Current (2010)		Short-Term (2015)		Intermediate-Term (2020)		Long-Term (2030)	
	Aicraft	Percent	Aircraft	Percent	Aircraft	Percent	Aircraft	Percent
Single Engine Reciprocating	37	67%	37	67%	37	61%	40	55%
Multiengine Reciprocating	8	15%	8	15%	8	13%	7	10%
Helicopter	2	4%	2	4%	3	5%	8	11%
Turbofan (Jet)	8	15%	8	15%	13	21%	18	25%
Total	**55**	**100%**	**55**	**100%**	**61**	**100%**	**73**	**100%**

OPERATIONS

We anticipate that operations growth will be mixed during the planning period. While local operations, primarily a function of recreational based aircraft will decline because of rising fuel, insurance, and other ownership costs, itinerant operations, primarily from business aircraft will increase because of increased congestion, increased ticket prices, and fewer available flights.

The forecasts that follow also address night operations, or those that take place between the hours of 10 p.m. and 7 a.m. daily. This is the period when the control tower is closed and no accurate traffic count is taken. The ATCT sampled flight data for instrument operations recorded by Providence Approach Control. This data indicates that on average, 3.5 instrument flights occur during the hours the control tower is closed. For planning purposes we assumed that an addition one visual flight also occurs on average every night, for a total of 4.5 operations. The data that follows reflects this increase. In addition, this data will be used when developing the noise contours that follow later in the study.

Table 3.5 (next page) shows the projected change based on a similar rate of growth (average annual two percent) as developed for based aircraft. Note that the decline in local based aircraft flying will be offset by the projected increases in itinerant/business operations. This assumption is reflective of national trends presented earlier in FAA forecasts and further supported by the decline in local/training flying at GON.

OPERATIONS BY FLEET MIX

In addition to understanding projections of total operations at GON, the next critical step is to assign these operation totals to the aircraft that currently are based and/or use the airport on a regular basis. This information is essential to assess future noise impacts and capacity needs for key components of the airfield infrastructure.

Table 3.5 - Forecasted Operations

Type	Year			
	2010	2015	2020	2030
Itinerant	21,500	20,800	20,500	22,000
Local	32,100	34,000	36,500	40,800
Total	**53,500**	**54,800**	**57,000**	**63,000**

- **Local Operations**. Local operations will decline as a percentage of based aircraft. This trend is inevitable as the cost of fuel continues to rise at a rate far higher than inflation. In 2007 the local operations to based aircraft ratio is 373:1; in 1990 it was 812:1. For purposes of this analysis, it is projected that 90 percent of total local civilian operations will be conducted by single engine piston and the remaining 10 percent by multi-engine piston. Most of the local military operations are conducted by rotorcraft

- **Itinerant Operations**. Itinerant operations will increase primarily because of the growing business market. As commercial operations reach maximum capacity as a factor of airport capacity in the region, U.S., business aircraft use will fill the void. GON is adequately sized and in a competitive location to take advantage of this demand for air service. Although the greatest number of operations at GON will continue to be small piston powered aircraft, the higher performance aircraft will show the greatest growth. For purposes of this analysis, our projections of specific itinerant aircraft operations will closely track with the same rates of growth anticipated for based aircraft. As shown above for local operations, 100 percent of itinerant military operations are shown as rotorcraft. Table 3.6 (next page) summarizes the results.

- **Peak Operations.** Peak operations are calculated to assist in the proper sizing of apron space for itinerant aircraft operations and terminal building and other facility sizes to ensure adequate space for pilots, crew, passengers, and visitors. Two categories are analyzed; peak month/average day (PMAD) and peak hour (PH). For planning purposes, PMAD is assumed to be 20% of annual operations (busiest month of the year) and PH is assumed to be 15% of the PMAD (busiest hour of the busiest month).

Table 3.6 - Operations Fleet Mix Forecast

Aircraft Category	2010			2015		
	Local	Itinerant	Total	Local	Itinerant	Total
Single Engine Reciprocating	7,855	17,868	25,723	7,871	17,827	25,698
Multiengine Reciprocating	1,698	3,863	5,562	1,702	3,855	5,556
Helicopter	425	966	1,390	425	964	1,389
Turbofan (Jet)	1,698	3,863	5,562	1,702	3,855	5,556
Total	**11,676**	**26,561**	**38,237**	**11,700**	**26,500**	**38,200**

Aircraft Category	2020			2030		
	Local	Itinerant	Total	Local	Itinerant	Total
Single Engine Reciprocating	7,806	17,681	25,488	8,462	19,167	27,630
Multiengine Reciprocating	1,688	3,823	5,511	1,481	3,354	4,835
Helicopter	633	1,434	2,067	1,692	3,833	5,526
Turbofan (Jet)	2,743	6,212	8,955	3,808	8,625	12,433
Total	**12,870**	**29,150**	**42,020**	**15,444**	**34,980**	**50,424**

COMMERCIAL SERVICE ANALYSIS

This section assesses the potential for reintroduction of scheduled commercial service at GON. This analysis will not delve into other commercial activities at the airport including commercial unscheduled or scheduled charter activity such as the Mohegan Sun flights to and from GON and Republic Airport in Farmingdale, NY since these operations were included in operations forecast presented above.

A number of factors must be considered to determine the viability of any new scheduled commercial carrier at GON. This includes a historical overview of past service at GON, assessment of competing services at nearby airports, local market demand, destination market(s) served, ticket costs, reliability and frequency of service to be offered, aircraft type and size, and finally passenger amenities. Many less quantifiable but important national and global issues that may have an indirect bearing on any new service at the airport should also be discussed. These include economics such as operating costs, security issues, and FAA operating regulations. All of these issues are presented below followed by conclusions and recommendations.

Commercial service was discontinued in 2003 with no indication that it may return. However, commercial service is a precarious segment of aviation. We do know that airport capacity in the United States is shrinking, with many major airports at or close to saturation, particularly during peak periods. In addition, small start up and low cost

carriers rarely provide airport sponsors with much advanced notice before setting up operations. As an example, both Pease International Tradeport in Portsmouth, NH, and Westover Air Reserve Base/Metropolitan Airport in Springfield/Chicopee, MA provided commercial service on very short notice to Skybus Airlines. However, Skybus left as quickly as it arrived because of rising fuel costs earlier in 2008. Worcester Regional Airport, Worcester, MA, has seen airlines come and go frequently over the past 10 years, but remains positioned to accept the next offer, if and when it comes, as with Pease and Westover.

HISTORICAL OVERVIEW

Commercial service enplanements at GON was in a steady decline from the peak in 1980 of 96,857 to only 5,952 in 2003, the final year of service. Table 3.7 shows historical levels of enplanements at GON. Records indicate that up to 1993, there were direct daily flights to both New York City and Philadelphia. After 1993, service was limited to only Philadelphia. Based on a report prepared for Connecticut DOT, Bureau of Aviation and Ports, in 1998 titled *Air Service Development Study for Groton-New London Airport;* the main reason for the decline was the expansion of commercial services at both Bradley/Hartford (BDL) and T.F. Green/Providence (PVD).

Table 3.7
Historic Enplanements

Year	Enplanements
1980	96,900
1985	36,500
1990	32,000
2000	12,100
2003	5,000

Along with competing service at the two nearby major air carrier facilities, GON was also impacted by several other contributing factors. The first has been cutbacks in the local defense industry, a major source of employment in the Groton and New London economy. An additional factor that benefited the larger competing airports was the introduction of low-fare carriers such as Southwest, Delta Express and Metrojet over the past several decades. Although some marginal low-fare carriers can be rather volatile in terms of longevity at these and other air carrier facilities, such service has never been available at GON.

Based on historical records maintained by the FAA, it also appears that 1998 was the last year of the federally sponsored airline subsidy provided through the Essential Air Service (EAS) program at GON. It was noted in the Air Service Study that GON, along with Bridgeport and New Haven, were receiving these subsidies, but due to proximity to Bradley/Hartford (BDL), T.F. Green/Providence (PVD), or New York City airports, these subsidies were suspended.

In the final year of commercial service operation at GON (2003), US Airways Express was flying four daily round-trips to Philadelphia using 19 seat turboprop Beech 1900 aircraft. Enplanements at this point had fallen to historical lows thus negating eligibility of FAA

entitlement funding[14]. Perhaps the single greatest event explaining the demise of GON scheduled service was the aftermath of the September 11, 2001 terrorist attacks. Airports across the nation experienced declines in passenger volume and did not begin to recover for several years thereafter (for further related discussion see Section 5.0 of the PART 139 Assessment contained in Appendix 2).

COMPETING SERVICES

There are three airports within a 90 minute (or less) of GON offering scheduled commercial airline service. These include Tweed-New Haven Regional Airport to the west, Bradley International Airport to the northwest and T.F. Green to the northeast of GON. A brief synopsis of service and facilities available at each is presented below:

- **Tweed-New Haven Regional Airport (HVN)**
  - Annual Enplanements: 2006 – 37,900, 2005 – 65,100, 2004 – 39,700[15]
  - Average Daily Scheduled Service Departures: 6
  - Scheduled Service Airlines: 1
  - Non-Stop Destinations: 1
  - Direct International: No
  - Longest Runway: 5,600 ft.
- **Bradley International Airport (BDL)**
  - Annual Enplanements (mil.): 2006 – 3.4, 2005 – 3.6, 2004 – 3.3
  - Average Daily Scheduled Service Departures: 165
  - Scheduled Service Airlines: 14
  - Non-Stop Destinations: 38
  - Direct International: No
  - Longest Runway: 9,510 ft.
- **T.F. Green Airport (PVD)**
  - Annual Enplanements (mil.): 2006 – 2.6, 2005 – 2.8, 2004 – 2.7
  - Average Daily Scheduled Service Departures: 147
  - Scheduled Service Airlines: 11

[14] FAA, through the enabling legislation Airport Improvement Program (AIP), provides entitlement funding for all commercial service airports with a minimum of 10,000 annual enplanements. The existing minimum is $1 million for eligible project development.
[15] Latest available data.

- Non-Stop Destinations: 27
- Direct International: Yes
- Longest Runway: 7,166 ft.

LOCAL MARKET DEMAND

Based on the results presented in the 1998 Air Service Study, the GON market area was defined as an area encompassing an approximate 20-mile radius around the airport. The Study noted that in 1998 within this area there were over a half-million airline tickets sold. With four daily non-stops to Philadelphia, an average of 3 percent of market area enplanements utilized GON. The other enplanements from the GON market area were 55 percent using PVD, 25 percent from BDL and the remaining 17 percent split between HVN, the NYC airports and Boston. With no commercial service at GON, it is still reasonable to assume the majority of local enplanements are still using PVD.

DESTINATION MARKET

Using a sample of ticket-lifts and travel agency surveys, the 1998 Air Service Study noted that the number one destination market from GON was Philadelphia[16]. The other top destination markets were Norfolk, VA and Washington D.C., which were assumed Department of Defense business travel. Utilizing data from the Ticket Lift Survey, it was determined in the Air Service Report that the actual preferred destinations for the GON market area travelers were Washington D.C (DCA) and Orlando, FL (MCO). These cities are also the top two destination markets for PVD and BDL.

TICKET COSTS

Airline fares are a major driver of passenger traffic and have a significant influence on airport preference where multiple opportunities exist, as is the case at GON. Review of various pricing comparisons between business (typically unrestricted ticket sales) and leisure (restricted ticket sales) indicate that GON was historically more expensive. On average, leisure fares were 18 percent cheaper at BDL and business fares were 19 percent less at PVD as noted in the Air Service Study.

SERVICE RELIABILITY AND FREQUENCY

At most small commercial service airports, the lack of reliability and inadequate frequency of flights are often viewed as the most important factors for choosing an alternate airport. The Air Service Study did a survey over a three-week period in 1998 of 130 air travelers. Approximately 85 percent of those surveyed were business passengers who reported that

[16] Passengers connecting on other outbound flights were not included.

the most important criteria were non-stop service at convenient times. Most surveyed stated that the convenience of departing GON outweighed the higher ticket prices.

At the time of the survey, there were only four daily non-stop flights to Philadelphia. However, the survey indicated that the early morning departure and evening return were adequate for connecting through to other flights at PHL. Although there is no statistical or anecdotal data concerning reliability, it must be assumed that this would have been a concern. Given the airport's seaside location, early morning fog and inclement weather would have had some bearing on cancelled or relocated operations. With so few flights, this would have undoubtedly caused concerns with GON air travelers for timing and scheduling[17].

AIRCRAFT TYPE AND SIZE

The results of the above referenced survey did not find any appreciable hesitation to fly on the smaller turboprop aircraft that were in use by US Airways Express (Beech 1900). Many respondents noted that jet service would be preferred along with greater selection in destinations. The Air Service Study indicated that during a brief period when Pilgrim Airlines was serving GON, Dash 8 aircraft were briefly used. This is a 37-seat aircraft, which is currently serving HVN.

PASSENGER AMENITIES

As part of the Passenger Survey conducted in 1998, respondents were asked to rate basic terminal facilities including accessibility, parking, and the terminal functions along with other aspects of the airline operation. Even though the terminal facilities received ratings better than average, most participants felt there was a need for a café, vending machines and a comfortable lounge area. Free parking was noted as strong consideration to use GON.

OTHER CONSIDERATIONS

In addition to the local considerations discussed above, the possible return of scheduled airline service to GON must also assess other national and global issues. Unquestionably, the most important of these are airline-operating costs. Historically, the rule of thumb used to determine a breakeven point for smaller markets was an average 50 percent load factor. Today, airline costs are constantly moving higher driven by the exponential rise in fuel costs. With the price of oil around $100/barrel, airlines are adopting a plethora of cost saving techniques while at the same time trying to keep pricing competitive. This includes

[17] At a similar airport, Knox County Regional in Maine, serving the Rockland/Thomaston/Owl's Head region of Maine's mid-coast, Stantec conducted a separate study to evaluate the times the airport was below minimums due to inclement weather. Our calculations indicated that this occurrence was 12.6 percent of the time on an annual basis.

reduction in force and wage freezing, mergers and consolidations, elimination of unprofitable routes, downsizing aircraft, off-peak pricing, and a la carte pricing of amenities. Based on current information, it would appear that an average load factor of approximately 75 percent would be a reasonable assumption to use as the breakeven point.

SUMMARY AND RECOMMENDATIONS

The analysis conducted to determine the possibility of reintroduction of scheduled airline service to GON does not indicate many favorable considerations. The following points provide a summary overview:

- Available airline service, markets served, and pricing structures at BDL and PVD will be a major consideration for any new airline at GON. In addition, HVN offers four daily non-stops to PHL.

- Available runway length at GON (5,000') will only allow full operation for small to mid-sized turboprop aircraft. Small regional jets can operate from GON, but may face limitations on hot days or wet/icy runway conditions.

- Airline operating costs are stretching operations close to the breaking point even at well-established markets. Capital expenditures for a start-up operation at GON may be prohibitive.

- A large percentage of historical airline travel at GON was DOD related. Federal cutbacks and resulting reductions in work force have reduced this potential market.

- Any new scheduled service at GON will require an upgrade to the AOC, establishment of a TSA presence with required infrastructure, and upgrade in terminal amenities if GON is to be competitive. Current funding limitations may prevent some, or all, of these requirements from occurring.

In conclusion, it does not appear likely that new scheduled service is a realistic possibility at GON through the short-term. Competition is too keen and costs are too high for a low volume start-up operation. However, it is only prudent to keep this option open to the extent practicable. As noted in the Air Service Study, GON does have the potential to fill some unexpected niche in the scheduled service airline market. Though somewhat unlikely under current conditions, several outlying facilities in the New England region have experienced just that, a case in point being Westover Air Reserve Base/Metropolitan Airport in Massachusetts. There, a low cost carrier, Skybus, introduced service to Ohio with A-319 aircraft. By all accounts, service was good and enplanements were increasing until the airline declared bankruptcy primarily due to fuel costs.

In order to ensure a strong operating base at GON, it is recommended that primary attention be given to accommodating and enhancing facility infrastructure for the upper

end of the general aviation fleet. Nonetheless, sound planning should be implemented to accommodate new scheduled service should the demand ever be realized including maintaining existing Part 139 certification.

GA/AIR TAXI PASSENGER ENPLANEMENTS

Passenger enplanement data is needed to ensure adequate facilities are available; such as terminal space, restrooms, lobby areas, auto parking etc.

Passenger enplanements at GON, since the air carrier market ended in 2003 consist of those passengers enplaning general aviation aircraft. These include both recreational, business aircraft, and air taxi operations. Unlike air carrier operations, which track every enplanement, records of general aviation aircraft operations are not maintained to the same degree.

Columbia and Lanmar, the two fixed base operators do maintain records of some flight activity, however, for the most part, accurate enplanement data is not required and not maintained. To gain some idea of the number of passengers using aircraft at GON, FAA assumes for planning purposes that for every itinerant departure, there are on average, 2.5 people, including the flight crew.

Forecasted itinerant operations in 2015, exclusive of military operations, will total 54,800. For planning purposes we assume one-half of total operations are counted for passenger enplanement purposes, or approximately 26,400. If we assume there were 2.5 people onboard each flight, then the total enplanements in 2015 equals 68,500.

In forecasting future enplanements, the selected growth scenario of 2 percent per year will be used. This increase will result in total estimated enplanements by the end of the planning period of approximately 78,750 (passengers and crew). Table 3.8 shows the growth as spread out over the 20 year planning period.

Table 3.8 - Passenger Enplanements

Year	Total Operations	50%	Passengers
2010	38,237	19,119	47,796
2015	38,200	19,100	47,750
2020	42,020	21,010	52,525
2030	50,424	25,212	63,030

PEAK HOUR PASSENGERS

Peak hour passengers are forecasted for the purpose of sizing terminal and other support building requirements, and will be used later in the study in developing alternatives for terminal and other passenger facilities.

Large commercial airports routinely analyze peaking characteristics because of the need to ensure terminal buildings and automobile parking are adequate. Smaller general aviation airports rely on more simplistic planning assumptions. Typical theories breakdown

annual enplanements into peak month, peak month/average day, and then peak hour using standard and accepted planning practices. Absent more reliable data, the peak month is typically July or August and accounts for 15 percent of the total annual enplanements. Peak month/average day is PM divided by 30 and then peak hour is 20 percent of this figure. Hence, the peak hour passenger forecast at GON is as presented in Table 3.9.

Table 3.9 - Peak Passenger Assessment

Year	Enplanements	Peak Month	PMAD	PH
2010	38,237	5,736	191	38
2015	38,200	5,730	191	38
2020	42,020	6,303	210	42
2030	50,424	7,564	252	50

CRITICAL FORECASTED AIRCRAFT

The current design aircraft is the Citation VIII. Given the reintroduction of scheduled airline service at GON is unlikely in the short-term; the future design aircraft will probably not change significantly. While the Gulfstream III and similar size aircraft may not be around in 20 years, aircraft of similar size and characteristics will. As an example, the larger and considerably more expensive Gulfstream V and its successor will use GON, however the operational numbers significant enough to warrant increasing the ARC into the "D" category, with larger wingspan sizes will most likely not be realized. Thus, the design aircraft for GON will not change during the term of this study. It will remain C-II for the primary runway and B-II for the crosswind.

AIRPORT ROLE

Without the reintroduction of scheduled airline service the role of GON to remain general aviation. In addition, the likelihood of commercial airline service returning to GON is remote. Competition is too keen and costs are too high for a low volume start-up operation. However, it is only prudent to keep this option open to the extent practicable. In the mean time the airport will continue to serve a valuable service to the public as a general aviation airport. The fairly consistent use of the facility by air taxi and other commercial and non-commercial shuttle operations is noteworthy. The use of GON will mirror the economy. In good times operations will flourish and during downturns, such as the airport experiencing in 2008, operations will naturally decline.

FORECAST SUMMARY

Table 3.10 on the next page summarizes the forecast data addressed in this chapter of the report.

Table 3.10 - Forecast Summary for Groton-New London Airport

Forecast Data	Year			
	2010	2015	2020	2030
Based Aircraft				
Single Engine	37	37	37	40
Multiengine	8	8	8	7
Helicopter	2	2	3	8
Turbojet	8	8	13	18
Total	**55**	**55**	**61**	**73**
Operations				
Itinerant	26,561	26,500	29,150	34,980
Local	11,676	11,700	12,870	15,444
Total	38,237	38,200	42,020	50,424
Peak Operations				
Peak-Month/Average Day (PMAD) [1]	191	191	210	252
Peak-Hour (PH) [2]	38	38	42	50
Passenger Enplanement	47,796	47,750	52,525	63,030
Peak Hour Passengers	38	38	42	50
Critical Design Aircraft	Citation 650	Citation 650	Citation 650	Citation 650
Airport Reference Code	C-II	C-II	C-II	C-II
Runway 5-23	C-II	C-II	C-II	C-II
Runway 15-33	B-II	B-II	B-II	B-II

Notes
1. PMAD is 20% of annual operations
2. PH is 15% of PMAD